

Claims

What is claimed is:

- 1 1. A filter housing comprising:
2 a sump for enclosing a filter cartridge within
3 said filter housing;
4 a head having an inlet and an outlet in fluid
5 communication with the filter cartridge, said head
6 removably attached to said sump;
7 a radial sealing means for providing a liquid-
8 tight seal between said sump and said head;
9 a pressure relief mechanism for depressurizing
10 said sump prior to removing said sump from said head;
11 at least one clamp for attaching said sump to
12 said head; and
13 a clamp actuator.
- 1 2. A filter housing of claim 1 wherein said means for
2 providing a liquid-tight seal between said sump and said
3 head is attached to said head.
- 1 3. A filter housing of claim 1 wherein said radial
2 sealing means comprises an O-ring, a quad seal, or a
3 gasket.
- 1 4. A filter housing of claim 1 wherein said at least one
2 clamp is driven with one or more springs.
- 1 5. A filter housing of claim 1 wherein said at least one
2 clamp is positioned in a horizontal plane around
3 corresponding rims of said head and said sump.
- 1 6. A filter housing of claim 1 wherein said clamp
2 actuator comprises a linear cam in mechanical communication
3 with said at least one clamp.

1 7. A filter housing of claim 1 wherein said clamp
2 actuator comprises a rotary cam in conjunction with a
3 linear cam.

1 8. A filter housing of claim 1 further including a safety
2 mechanism that is responsive to a pressure inside said
3 filter housing.

1 9. A filter housing of claim 8 wherein said safety
2 mechanism locks said clamp actuating mechanism to prevent
3 opening said at least one clamp when said filter housing is
4 pressurized.

1 10. A filter housing of claim 1 further including means
2 for locking said at least one clamp in an open position to
3 facilitate removal of said sump or locking said at least
4 one clamp in a closed position when said sump is attached
5 to said head.

1 11. A filter housing of claim 1 further including a filter
2 cartridge.

1 12. A filter housing of claim 1 further including a filter
2 cartridge having one or more sealing means with a stub end
3 cap, wherein a filtered fluid flows through the stub end
4 cap and out through the outlet of said head.

1 13. A filter housing comprising:
2 a sump for enclosing a filter within said filter
3 housing;
4 a head removably attached to said sump, said head
5 having an inlet and an outlet in fluid communication
6 with the filter cartridge;

7 a radial sealing means for providing a liquid-
8 tight seal between said sump and said head;
9 a pressure relief mechanism for depressurizing
10 said sump prior to removing said sump from said head;
11 at least two clamps in peripheral arrangement for
12 attaching said head and said sump, said at least two
13 clamps having a planar portion thereof; and
14 a linear cam in mechanical communication with
15 said at least one clamp at an interface with the
16 planar portion of said at least one clamp such that
17 upon actuating said linear cam, said linear cam moves
18 said at least one clamp to an open position to
19 facilitate removal of said sump or to a closed
20 position to attach said sump to said head.

1 14. A filter housing of claim 13 wherein said radial
2 sealing means comprises an O-ring, a quad seal, or a
3 gasket.

1 15. A filter housing of claim 13 wherein said at least one
2 clamp is driven with one or more springs.

1 16. A filter housing of claim 13 further including a
2 safety mechanism that is responsive to a pressure inside
3 said filter housing.

1 17. A filter housing of claim 16 wherein said safety
2 mechanism locks said clamp actuating mechanism to prevent
3 opening said at least one clamp when said filter housing is
4 pressurized.

1 18. A filter housing comprising:
2 a sump for enclosing a filter within said filter
3 housing;

4 a head removably attached to said sump, said head
5 having an inlet and an outlet in fluid communication
6 with the filter cartridge;

7 a radial sealing means for providing a liquid-
8 tight seal between said sump and said head;

9 a pressure relief mechanism for depressurizing
10 said sump prior to removing said sump from said head;

11 at least two clamps under a tension load in
12 peripheral arrangement for attaching said head and
13 said sump, said at least two clamps having a planar
14 portion thereof; and

15 a clamp actuating mechanism comprising a linear
16 cam in conjunction with a rotary cam wherein the
17 linear motion of the linear cam is translated to
18 rotational motion of the rotary cam to open said at
19 least two clamps when said linear cam is moved along a
20 plane.

1 19. A filter housing of claim 18 wherein said radial
2 sealing means comprises an O-ring, a quad seal, or a
3 gasket.

1 20. A filter housing of claim 18 further including a
2 safety mechanism that is responsive to a pressure inside
3 said filter housing.